

Group 1—FLIGHT INSTRUMENT SUPPLIES CONTROL AND PITOT-STATIC SYSTEM

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WARNING

Voltages in excess of 100 volts either a.c. or d.c. can be dangerous under certain circumstances. Personnel should therefore ensure that the electrical system is electrically safe before any servicing is attempted. Where it is essential that tests or adjustments are to be made with the electrical power switched on, the greatest care must be exercised.

DESCRIPTION AND OPERATION

Introduction

1. Information on the layout and interpretation of the schematic wiring diagrams can be obtained from the General Information group contained immediately after Section 5 marker card. Also to be found in the General Information group are all the general modifications applicable to all types of Valiant aircraft.

FLIGHT INSTRUMENT MASTER CONTROL (fig. 1)

2. The flight instruments, supplied via fuse panels D and E, obtain their supplies from the flight instruments contactor mounted on panel Z. This contactor is controlled by the two position ('ON' 'OFF' sprung to centre) flight instrument master switch on the instrument top panel, which when

selected to ON connects a supply, from panel Z, via a fuse on panel D, to the operating coil of the reset relay R2, Type S4, mounted on the back of panel Z. Relay R2 operates and connects (R2/1) the same supply from panel Z, via another fuse on panel D, to the reset coil R5 of the contactor via (R4/1) its closed trip contacts. Contacts R5/2 operate and connect supplies to the separate instrument supply fuses on panels D and E, via the two main 80 amp. H.R.C. fuses on panel Z. At the same time contacts R5/1 operate and disconnect the supply to the contactor reset coil R5.

3. When the master switch is selected to OFF the supply is connected to the operating coil of the trip relay R1, Type S4, mounted on the back of panel Z. Relay R1 operates to connect (R1/1) the same

supply, via another fuse on panel D, to the trip coil R4 of the contactor. Contacts R4/2 operate and disconnect the supply to the separate instrument supply fuses on panels D and E. Contacts R4/1 operate and make ready the circuit for resetting the contactor when the master switch is selected to ON.

4. The flight instrument master switch also controls the supplies to the power control units via the trip and reset relays R1 and R2 (Chap. 2, Group 3).

PITOT AND STATIC SYSTEM

(fig. 2)

5. Two pitot and static systems are employed, each being supplied from its own pressure head. The port system supplies the first pilot's instruments. The starboard

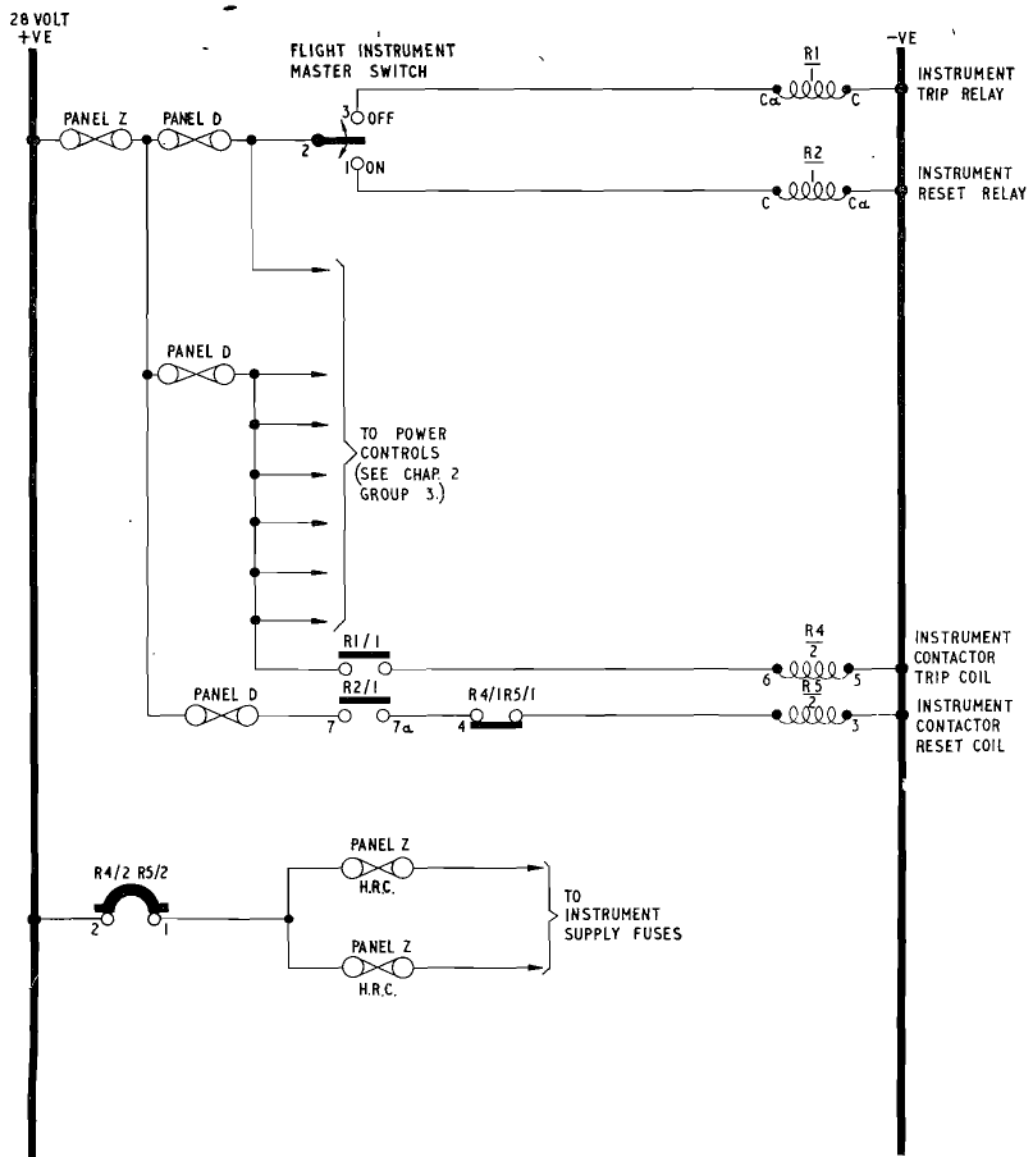


Fig. 1. Flight instruments master control (For routing diagram see Chap. 2, Group 3)

system, while supplying the second pilot's and navigator's instruments, also supplies all the other equipment requiring pitot and static supplies.

6. The pitot and static systems are used to supply the following instruments:—

- A.M.U. Recorder unit.
- Air speed indicator at pilot's, co-pilot's and navigator's positions.
- Machmeter at pilot's and co-pilot's positions.
- V.G. recorder ◀ (pre Mod. 2833), Fatigue meter A.S.I. contactor (post Mod. 2823). ▶
- E.L. fusing pilot switch (post Mod. 1196).
- T4 bomb sight computer (post Mod. 1648).
- Auto stabilizer monitor unit (post Mod. 2252).

◀ The pitot system alone is used for supplying the undercarriage lock airspeed pressure switch (26SR/11627)—See Group 6. ▶

Note . . .

A five-way shut-off cock in the lines to the V.G. recorder enables the latter to be shut-off if desired. When the cock is shut-off the lines to the recorder are connected to a common vent to atmosphere.

7. The static system alone is used to supply:—

- Altimeter at pilot's and co-pilot's positions.
- Rate of climb indicators at pilot's and co-pilot's positions.
- ◀ Auto-pilot coupling unit, post Mod. 1583 and pre. Mod. 2788.

Note . . .

Post Mod. 2788 the auto-pilot coupling unit is connected to independent static vents, one on each side of the fuselage. ▶

- N.B.C. calculator, Type 3.
- Altimeter at 1st navigator's position (post Mod. 1171).
- V.G. recorder attitude switch (when fitted).
- Zero reader flight computer (post Mod. 2218).

◀ Cabin overpressure switch (Mod. 2490), see Chap. 5, Group 2. ▶

Note . . .

◀ (1) For positions of drain points see Group 7, fig. 3.

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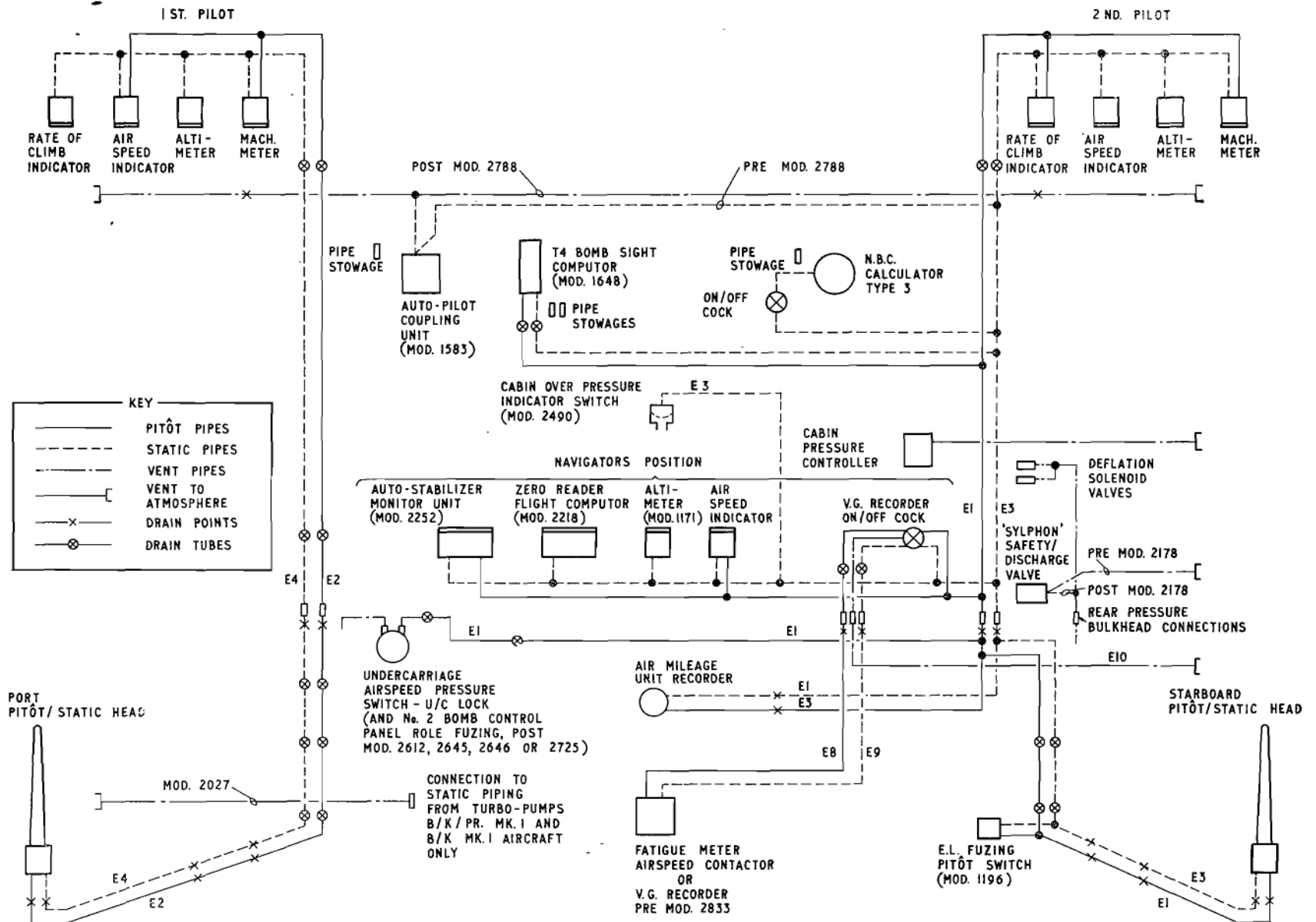


Fig. 2. Pitot and Static system

(2) Mod. 2880 introduces polythene drain traps at 22 drain points in the pitot/static pipes in the fuselage, in lieu of light alloy traps. This enables visual inspection of the quantity of water in the drain traps, and also prevents the pipes being blocked under conditions when this water is frozen. ►

SERVICING

Introduction

8. Detailed descriptions of the general tests to be carried out on all aircraft electrical circuits are given in the General Information group contained in this book immediately after Section 5 marker card.

9. Reference should be made to the relevant Air Publications for information on the testing of equipment used in the installations.

FLIGHT INSTRUMENT MASTER SUPPLIES

10. (1) Check the circuit fuses and connect a 28-volt d.c. supply to the aircraft external connection.
- (2) Select the FLIGHT INSTRUMENTS MASTER switch to ON.
- (3) Check that there is a supply at the circuit side of the INSTRUMENTS No. 1 and No. 2 H.R.C. fuses on panel Z.
- (4) Select the switch to OFF and check that there is no supply at the INSTRUMENTS No. 1 and No. 2 fuses.

◀ PITOT AND STATIC SYSTEM

11. The pitot and static systems should be

tested in accordance with instructions laid down in A.P.1275B, Vol. 2, Leaflets Y1 and Y2. The following points should be noted:—

(1) When applying pressure to the starboard pitot system, check with a test lamp that the undercarriage airspeed pressure switch closes at 80—85 knots on rising pressure.

(2) If ever suction should be applied to the pitot system for testing purposes, the undercarriage and bomb fuze airspeed pressure switches should first be disconnected from the system.

(3) For setting-up and checking the undercarriage lock airspeed pressure switch refer to A.P.1275, Vol. 1, Section 24. ►

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